

# Intel® USB 3.0 eXtensible Host Controller Driver

Release Notes (4.0.4.51)

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*January 2016*

*Revision 1.4*

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## Revision History

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Revision Number	Description	Revision Date
0.7	Initial Release.	September 2014
0.8	Alpha Release.	October 2014
0.85	Alpha2 Release.	December 2104
0.90	Beta Release	February 2015
1.0	PV Release	June 2015
1.1	MR1 Release	September 2015
1.2	MR2 Release	September 2015
1.3	MR3 Release	December 2015
1.4	MR4 Release	January 2016

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# 1 Introduction

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## 1.1 Scope of Document

This document provides release information about the Intel® USB 3.0 eXtensible Host Controller Driver. It covers Release Kit summary, Important Notes, Resolved Issues and Known Issues. This document is intended for OEMs and ODMs that are validating the Intel® USB 3.0 eXtensible Host Controller Driver on their platform.

## 1.2 System Requirements

The Intel® USB 3.0 eXtensible Host Controller Driver contains support for the following Intel Chipsets:

- Intel® 8 Series/C220 Chipset Family
- 4<sup>th</sup> Generation Intel® Core™ Processors
- Intel® C610 series Chipset Family
- Intel® 9 Series Chipset Family
- Intel® Pentium® Processor or Intel® Celeron® Processor N- & J- Series
- 5<sup>th</sup> Generation Intel® Core™ Processors
- Intel® Core™ M Processor
- 6<sup>th</sup> Generation Intel® Core™ Processors
- Intel® 100 Series Chipset Family

The following Operating Systems are supported based on chipset:

**Intel® 8 Series Chipset Family**  
**4<sup>th</sup> Generation Intel® Core™ Processors**  
**Intel® 9 Series Chipset Family**  
**Intel® Pentium® Processor or Intel® Celeron® Processor N- & J- Series**  
**5<sup>th</sup> Generation Intel® Core™ Processors**  
**Intel® Core™ M Processor**  
**6<sup>th</sup> Generation Intel® Core™ Processors**  
**Intel® 100 Series Chipset Family:**

- Windows\* 7 Operating System (both 32-bit and 64-bit versions).

**Intel® C220 series chipset family**  
**Intel® C230 series chipset family**  
**Intel® C610 series Chipset Family:**

- Windows\* 7 Operating System (both 32-bit and 64-bit versions).
- Windows\* Server 2008 R2 Operating System.
- Windows\* Small Business Server 2008 Operating System.

**Note:** The Intel® USB 3.0 eXtensible Host Controller Driver is not supported on Windows\* XP and Windows Vista\*. For these operating systems, ensure your BIOS settings have the xHCI Mode set to "Auto" or "Smart Auto". This will reconfigure the USB 3.0 ports to function as USB 2.0 ports using the native Windows\* EHCI driver. For more



information, see the Wildcat Point-LP Platform Controller Hub (PCH) BIOS Specification document.

The Intel® USB 3.0 eXtensible Host Controller Driver Installer and Intel® USB 3.0 Monitor support the following languages:

- Arabic (International)
- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Danish
- German
- Greek
- English (United States)
- Spanish
- Finnish
- French (International)
- Hebrew
- Hungarian
- Italian
- Japanese
- Korean
- Dutch
- Norwegian
- Polish
- Portuguese (Brazil)
- Portuguese (Portugal)
- Russian
- Slovak
- Slovenian
- Swedish
- Thai
- Turkish

## 1.3 Acronyms and Terminology

Term	Description
BSOD	Blue Screen of Death (Stop Error)
CRB	Customer Reference Board



Term	Description
EHCI	Enhanced Host Controller Interface
FS	Full-Speed
HID	Human Interface Device (ex: keyboard or mouse)
HS	High-Speed
IBP	Intel Business Portal ( <a href="https://businessportal.intel.com">https://businessportal.intel.com</a> )
LS	Low-Speed
PCH	Platform Control Hub
PV	Production Version
RMH	Rate Matching Hub
SS	Super-Speed
USB	Universal Serial Bus
xHCI	eXtensible Host Controller Interface
WPP	Windows* software trace Pre-Processor



## 2 Release Kit Summary

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### 2.1 Release Kit Details

**Kit Name:** Intel(R) USB 3.0 eXtensible Host Controller Driver

**Version:** 4.0.4.51

### 2.2 Kit Contents

The contents of this release kit include:

- Intel® USB 3.0 eXtensible Host Controller Driver Installer

The Intel® USB 3.0 eXtensible Host Controller Driver Installer "Setup.exe" will install the following drivers and application on the system:

- Intel® USB 3.0 eXtensible Host Controller Driver
- Intel® USB 3.0 Root Hub Driver
- Intel® USB 3.0 Host Controller Switch Driver
- Intel® USB 3.0 Monitor

**Note:** For 6th Generation Intel® Core™ Processors / Intel® 100 Series Chipset Family platform, the Intel® USB 3.0 Host Controller Switch driver will not be installed.

- Intel® USB 3.0 eXtensible Host Controller Driver – Release Notes
- Intel® USB 3.0 eXtensible Host Controller Driver – Bring Up Guide
- Intel Software License Agreement

**Note:** It's recommended that USB3.0 driver should only be installed using the setup.exe. Proper device functionality cannot be ensured if INF installation is used.

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## 3 *Important Notes*

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### 3.1 USB 3.0 Collaterals

Please see the document "Intel(R) USB 3.0 eXtensible Host Controller Driver - Bring Up Guide" for information on driver installation and usage. This document can be found in the Intel® USB 3.0 eXtensible Host Controller Driver release kit.

Another useful document to reference is the "Intel(R) USB 3.0 eXtensible Host Controller Driver - Customer Validation and Debug Guide". This document is available on CDI. Please contact your Intel FAE for access.

### 3.2 Platform Best Known Configuration

Please refer to "Client Base Platform Best Known Configuration" from Intel Business Portal (IBP) for platform configuration setup that aligns to this milestone releases.

### 3.3 New Root Certificate Signing

The current driver is signed with 2048 Bit Root certificate. Some Windows\* 7 OS image might not contain the correct root certificate to authenticate it. If this is the case, it's required to install Microsoft\* KB [931125](#).

For more detail of 2048 Bit root certificate, see Root Certification Guidance - customer communication #549032

### 3.4 EHCI controller removal from 6<sup>th</sup> Generation Intel® Core™ Processors / Intel® 100 Series Chipset Family.

For the 6<sup>th</sup> Generation Intel® Core™ Processors / Intel® 100 Series Chipset Family generation, the EHCI controllers along with their integrated rate matching hubs (RMH) have been removed from the PCH. Intel continue to provide USB functionality through the xHCI controller for USB 2.0 and USB 3.0 connectivity. The implication of this change is USB functionality will not work on the Windows\* 7 based image, since it doesn't support native xHCI controller. To enable USB functionality in the Windows\* 7 OS, it's required to manually install the USB3.0 (xHCI) driver.

For more detail of this implication and instruction how to manually add USB3.0 driver to Windows\* 7 based image, see EHCI Removal from 6th Generation Intel® Core™ Processors / Intel® 100 Series Chipset Family Platform Controller Hub (PCH) - Technical White Paper document # 541711.



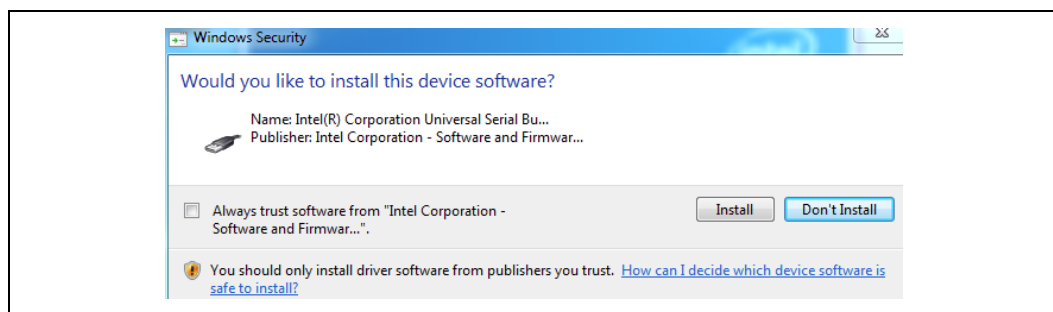
### 3.5 Upgrading/downgrading with a Non-PV (WHQL) Driver.

When doing an upgrade/downgrade of the USB3.0 driver to a Non-PV version of the USB3.0 driver, you may encounter a “Windows Security” pop up message (Figure 1) requesting approval to trust and allow the installation of the driver. During that moment of the install process, the previous driver is already uninstalled and all the USB ports in the platform will not function. This may cause the installation process to get stuck and cause the installation the USB3.0 driver to fail.

To avoid running into this situation, follow the steps below:

1. When installing the USB3.0 for the first time using setup.exe, select (check) the option “Always trust software from Intel Corporation Software and Firmware...” on the “Windows Security” pop up message (Figure 1) for all three USB3.0 driver components. The next time when doing an upgrade/downgrade of the Non-PV USB3.0 driver, the “Windows Security” message will not pop up requesting for approval.
2. **Pre 6<sup>th</sup> Generation Intel® Core™ Processors / Intel® 100 Series Chipset Family platforms only:** If you have already done installation for the first time using setup.exe and did not check the option “Always trust software from Intel Corporation Software and Firmware...” on the “Windows Security” pop up message, go to control panel to uninstall the driver and reboot the system. Install the driver again but this time check the option “Always trust software from Intel Corporation Software and Firmware...” on the “Windows Security” pop up message.

Figure 1. Windows Security



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## 4 Closed Issues

Issue #	Description	Resolution
4773420	ODD USB devices may fail to write data to a disc under Windows PE 32bit environment.	Resolved in Release Rev: 4.0.4.51 (MR4)
4773498	BSOD 0xC2 occurred when running Standby to Hibernation stress cycles.	Resolved in Release Rev: 4.0.4.51 (MR4)
5349775	USB keyboard does not work in pre-boot environment after system warm reboot if xHCI enter D3 per more than 5 mins	Resolved in Release Rev: 4.0.3.49 (MR3)
5022367	Bluetooth device may fail to enter selective suspend using specific test tool	Resolved in Release Rev: 4.0.3.49 (MR3)
5022469	USB functionality is lost when system boot to Windows* PE 32bit.	Resolved in Release Rev: 4.0.2.42 (MR2)
5022402	System may hangs when exiting Windows* PE 32bit environment.	Resolved in Release Rev: 4.0.2.42 (MR2)
4802807	USB devices may take more than 10 seconds to work after system boot and if the devices are connected behind an USB3.0 Hub.	Resolved in Release Rev: 4.0.2.42 (MR2)
4773088	BSOD 0x9F may occurs after resuming from S3/S4 and an USB monitor is plugged to or unplugged from the system.	Resolved in Release Rev: 4.0.1.40 (MR1)
4773022	BSOD 0xD1 may occurs after connecting an USB3.0 hub with 2 USB keyboards and 2 USB Mouse connected.	Resolved in Release Rev: 4.0.1.40 (MR1)
40435547	BSOD 0xD5 may occurs after a USB3.0 Hub is disconnected from 4th Generation Intel® Core™ Processors system.	Resolved in Release Rev: 4.0.1.40 (MR1)
4772587	USB printer may take 6 to 7 second to get removed from the device manager after it is unplugged from the USB3.0 port.	Resolved in Release Rev: 4.0.1.40 (MR1)
4043554	xHCI controller may report yellow bang code 12 under WinPE on Intel 4th Generation Intel® Core™ Processors\ Intel® 8 Series Chipset Family system.	Resolved in Release Rev: 4.0.1.40 (MR1)
4802763	A USB 3.0 Dock may loses after resume from S3.	Resolved in Release Rev: 4.0.0.36 (PV)
4637861	USB ports have no function under WinPE for Intel X99 platform.	Resolved in Release Rev: 4.0.0.36 (PV)
4772404	BSOD 0xC9 may occurs on iusb3hub.sys driver after connecting DP Monitor to Type-C port.	Resolved in Release Rev: 4.0.0.36 (PV)



Issue #	Description	Resolution
4802789	xHCI controller may report yellow bang under WinPE on Intel 5th Generation Intel® Core™ Processors\ Intel® Core™ M Processor system.	Resolved in Release Rev: 4.0.0.36 (PV)
4802786	BSOD may occur in iusb3xhc.sys when rebooting the guest OS environment.	Resolved in Release Rev: 4.0.0.36 (PV)
4043553	BSOD 0xD1 may occur on iusb3xhc.sys driver during Windows shut down.	Resolved in Release Rev: 4.0.0.36 (PV)
N/A	Added Billboard notification support for type-c	Resolved in Release Rev: 4.0.0.29
N/A	Added support for Non-Muxed topology for type-c configuration	Resolved in Release Rev: 4.0.0.29
4770274	USB3.0 device may disappear after resuming from S3.	Resolved in Release Rev: 4.0.0.27
4802754	BSOD 0x9F may occurs during warm boot, cold boot or S4 stress test	Resolved in Release Rev: 4.0.0.27
4802713	A specific WWAN device may re-enumerate slow during S3 stress test	Resolved in Release Rev: 4.0.0.27
4636660	When multiple USB2.0 HUBs (connected together with USB devices plugged in behind the HUBs) is unplugged from the Root Hub Port, under certain conditions a delay may be seen for the USB devices to be removed from the device manager.	Resolved in Release Rev: 4.0.0.27
4769361 (4769979)	Fixed issue where the system is in Sx, the USB 3.0 connection status bit may get overwritten during a physical device detach/reattach to the system.	Resolved in Release Rev: 4.0.0.23 (ENG)
4768878	Fixed issue where the xHCI controller premature wake from D3 may inadvertently wake the system from Sx.	Resolved in Release Rev: 4.0.0.23 (ENG)
4636313	A Bluetooth device may fails to connect to Bluetooth controller if the Bluetooth controller is turn off and on.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636626	BSOD 0x9F may occurs on Windows 32bit during reboot stress test if specific Bluetooth\WiFi combo device is connected.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636726	If Bluetooth device is disabled through the taskbar icon, it may take 10 seconds for Bluetooth device to get disabled.	Resolved in Release Rev: 4.0.0.18 (Beta)
4994858	USB2.0 mouse may freezes in Windows login screen after resuming from S3 if an USB2.0 keyboard is connected to other USB port.	Resolved in Release Rev: 4.0.0.18 (Beta)
4636579	Frame counter may get reset after Isochronous USB device is plugged/unplugged from the system.	Resolved in Release Rev: 4.0.0.18 (Beta)



Issue #	Description	Resolution
4636270	A specific USB2.0 thumb drive may disappear from device manager if a file transfer is initiated after formatting the device.	Resolved in 4.0.0.12 (Alpha2)
4636006	Under certain condition, specific High resolution USB3.0 ISOCH camera may fail to enumerate when connected to xHCI controller.	Resolved in 4.0.0.12 (Alpha2)
4768712	USB3.0 Root Hub may disappear after multiples re-plugs of an external USB3.0 hub with 4 devices connected (USB2.0 Mass storage, Webcam, Keyboard, USB3.0 Mass storage)	Resolved in 4.0.0.7 (Alpha)
4802670	Bluetooth device may fail to enter D2 after the xHCI driver is installed	Resolved in 4.0.0.7 (Alpha)
4802675	BSOD 0x50 may occurs on iusb3hub.sys driver if the ACPI enumeration output buffer end is not page aligned	Resolved in 4.0.0.7 (Alpha)
4802660	Bluetooth device may takes longer time to enable after it's disabled and re-enabled through SW in the OS.	Resolved in 4.0.0.7 (Alpha)

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## 5 Known Issues

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Issue #	Description
	N/A

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